

## REMARKS

Applicant acknowledges receipt of the Office Action dated June 19, 2002, in which the Examiner rejected claims 1-49. The Examiner rejected claims 1-49 under 35 U.S.C. § 103(a) as being unpatentable over *Hogan* (USP 4,872,954), *Xing* (USP 6,133,491) or *Cha et al.* (USP 5,470,384) both further in view of *Nickens et al.* (USP 6,139,806). For the reasons set forth below, Applicant traverses the rejection and respectfully submits that all of the claims are allowable.

### Status of the Claims

Claims 1-49 are pending. As set forth in the amendments, claims 1, 12, 22 and 46 have been amended and new claims 50-56 have been added. No new matter has been added. Support for the amendments and new claims 50-56 can be found in the specification at page 5, lines 12-15 and page 16, lines 14-15.

### Rejections under § 103

The Examiner rejected claims 1-49 under 35 U.S.C. § 103(a) as being unpatentable over *Hogan* (USP 4,872,954), *Xing* (USP 6,133,491) or *Cha et al.* (USP 5,470,384) both further in view of *Nickens et al.* (USP 6,139,806). Applicant respectfully traverses the Examiner's rejections for at least the following reasons:

First, it should be noted that the Examiner has acquiesced to the fact that none of the references teach the use of an eductor scrubber as expressly recited by Applicant in claims 4-7, 18-21 and 32-45. The Examiner believes it would have been obvious to one of ordinary skill in the art to employ a eductor scrubber because the *Hogan* reference generically suggests that some type of scrubber may prove useful. Applicant acknowledges that scrubbers have been used to clean certain

vapor streams, however, the use of an eductor scrubber has proven to be particularly beneficial. The eductor scrubber, when coupled with a desorber drum acts not only as a scrubber but also a pump that can create a draft and pull the gaseous vapors from the drum. In addition, the eductor scrubber is useful as a heat exchanger to help control the temperature of the gas.

These benefits help decrease capital costs by reducing or eliminating the need for other equipment necessary to perform the same functions. The fact that the field of present invention is replete with art only serves to strengthen the position that eductor scrubbers are not obvious additions to desorber drums. Otherwise these eductor scrubbers would have been expressly mentioned as used in combination with a desorber. For this reason, all of the claims that recite the use of an eductor scrubber as part of the present invention are believed to be patentable and in condition for allowance.

Nonetheless, the Applicant has amended the independent claims 1, 12, 22 and 46 to require non-oxidative environments inside at least one drum of the present invention. Although, this embodiment is not a necessary requirement for treating every kind of waste, i.e., not all wastes have dangerous volatile components, the waste material contemplated by the present invention will at times include dangerous volatile components. The art cited by the Examiner makes no mention at all of atmospheric conditions inside the respective drums. Thus, this element is expressly missing from the cited references. Further, none of the references suggest that a non-oxidative environment is needed or beneficial in the desorber drums. As the Examiner is aware, the prior art references must teach or suggest all the claim limitations of the invention in order to establish a *prima facia* case for obviousness. MPEP § 2143. Therefore, the references cited by the Examiner can not form the basis for a proper § 103 obviousness type rejection. For this reason, the Applicant

believes that the claims as amended are patentable and in condition for allowance. Reconsideration of all rejections and allowance of all pending claims is respectfully requested.

## CONCLUSION

This response to the Office Action of June 19, 2002 has addressed the Examiner's rejections. For the reasons stated above, all claims are believed to be in condition for allowance and such favorable action is respectfully requested. If the Examiner has any questions or comments or otherwise feels it would be helpful to advance this case, he is encouraged to telephone the undersigned at (713) 238-8040.

Respectfully submitted,



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## MARKED-UP VERSION OF AMENDMENTS

### In the Claims:

New claims 50-56 have been added. The following claims have been amended as indicated.

1. (Amended) A desorption method comprising:
  - (a) conveying waste material into a first drum, said first drum having a first gas extraction port;
  - (b) sealing the waste material in said first drum;
  - (c) heating the waste material in said first drum to a preselected first temperature sufficient to volatize at least one component of the waste material and form a gas;
  - (d) extracting the gas from said first drum through said first gas extraction port;
  - (e) conveying the waste material remaining after step (c) into a second drum, said second drum having a second gas extraction port;
  - (f) sealing the waste material in said second drum;
  - (g) heating the waste material in said second drum to a second temperature greater than said first temperature to volatize a component of the waste material and form a gas;
  - (h) extracting the gas from said second drum through said second gas extraction port[.];  
wherein the heating of the waste material in one or more of steps (c) and (g) is carried out in a non-oxidative environment.
  
12. (Amended) A method for the recovery of selected materials from waste comprising:
  - (a) depositing waste material into a first drum, said first drum having a first internal volume and a first gas extraction port;
  - (b) sealing the waste material in said first drum;
  - (c) heating the waste material in said first drum to a temperature sufficient to volatize at least one component of the waste material and form a gas;
  - (d) extracting the gas from said first drum through said first gas extraction port;
  - (e) placing the waste material remaining after step (d) into a second drum, said second drum having a second gas extraction port and a second internal volume smaller than said first internal volume;
  - (f) sealing the waste material in said second drum;

(g) heating the waste material in said second drum to a temperature sufficient to volatize at least one component of the waste material and form a gas;

(i) extracting the gas from said second drum through said second gas extraction port[.];  
wherein the heating of the waste material in one or more of steps (c) and (g) is carried out in a non-oxidative environment.

22. (Amended) Apparatus for treating waste material and recovering selected products therefrom comprising:

a first drum having a first interior volume and a first gas extraction port;

a second drum having a second interior volume smaller than said first interior volume and having a second gas extraction port;

wherein at least one of said first or second drum further comprises a hot gas inlet for conveying a hot gas into said drum creating a non-oxidative environment inside said drum;

a heater heating the waste material in said first drum to a temperature and for a time sufficient to volatize at least one component of the waste material and form a gas of said component;

a conveyor for moving the waste material that is not volatized from said first drum to said second drum;

a heater heating the waste material in said second drum to a temperature and for a time sufficient to volatize at least one component of the waste material and form a gas of said component;

a conveyor for moving the waste material that is not volatized out of said second drum.

46. (Amended) A desorption method comprising:

- (a) conveying waste material into a desorption drum, said drum having a gas extraction port;
- (b) sealing said drum from the ambient atmosphere;
- (c) conveying hot gas into said drum to create a non-oxidative environment inside said drum and to heat the waste material to a preselected temperature sufficient to volatize at least one component of the waste material and form a vapor;
- (d) extracting the vapor from said drum through said gas extraction port.